

traversed. There are significant elements in the Applicant's claims that clearly distinguish the combination of references. These elements are described as follows:

1. A flexible material

All of Applicant's claims call for an expanded net material made from flexible sheets of plastic, cardboard or metal foil. The Stock material is not flexible. It is rigid, and it must retain its rigid shape after expansion. Stock states that his material may be either sheet metal, or plastic, paper or cardboard. Stock further states that, if sheet metal is used, then his expanded product inherently has the necessary stiffness to retain its shape. He further states that, if plastic, paper or cardboard is used, then the expanded form must be sprayed or impregnated with a stiffening agent in order to acquire the stiffness needed to retain its shape. See Stock, column 2, lines 24-40. It is clear that the Stock invention does not contemplate anything approaching flexibility. The sheet metal used in his patent for making the expanded metal structure is so heavy and rigid that the slitted sheet cannot be expanded merely by stretching. Rather, it is necessary for Stock to use dies to force the slits apart. See Stock, column 3, lines 40-60.

Similarly, the Kinney patent is completely lacking in any disclosure of the use of a flexible sheet. Kinney's product is **metal fencing**. (See the Title and the first paragraph of the patent.) Kinney produces slits in flat metal plates and then expands them into self-supporting fence panels. His objective is to produce "a very stiff structure." (See column 2, line 53.) Stated in other words, he intends to make a frame-work "having great stiffness and strength." (See column 3, lines 3 and 30-31.) There certainly is no disclosure or suggestion to use a flexible sheet. The teaching is directly to the opposite.

Since neither Stock nor Kinney discloses the Applicant's claimed element of a **flexible** sheet, it is clear that the combination of references must fail and that the rejection of claims 1-12 be withdrawn for this reason alone.

2. An expanded net material

All of Applicant's claims define the product as an **expanded net material** made from a flexible sheet. Both the Stock and the Kinney patents fail as references because they clearly relate to expanded metal rather than expanded metal net. There is no need to argue this point at great length. The Court of Appeals for the Federal Circuit has specifically ruled that the term "expanded metal" has a specific meaning in the art that is operatively different from that of a claim element calling for "expanded metal net." This ruling was made in the case of *In re Shaikh G.M.Y. Alhamad* in a decision dated December 18, 1997, wherein the CAFC reversed the Board of Appeal's rejection of the product claims in Applicant's companion application Serial No. 07/633,9940, now patent No. 5,871,857. A copy of this decision is enclosed herewith.

In the Applicant's companion application, the primary reference on which the Board of Appeals based its rejection was the Bennie British patent No. 554,562, which disclosed a construction board having expanded metal or wire netting embedded therein. In reversing the Board's decision, the Court of Appeals stated:

Bennie discloses a composite sheet material comprising two fibrous webs and an interposed reinforcement of wire netting or expanded metal. Bennie is limited, however, in several important respects. First, Bennie only discloses the use of wire netting and expanded metal; it does not disclose the use of expanded metal net -- made from foil. Wire netting is typically made with wires having substantial tensile strength. Expanded metal is made by making numerous slits in a strong, stiff metal sheet and then expanding the slits to form a strong, stiff lathe for use in structurally reinforcing a composite -- like the metal lathe one typically uses to build plaster walls. In contradistinction, an expanded metal net is only somewhat like expanded metal, but it is made from such thin and flimsy material that it has little tensile strength or rigidity.

In summarizing its conclusions, the Court of Appeals elaborated further on the distinctions between expanded metal and expanded metal net, as follows:

On appeal, Alhamad begins by noting that the term "expanded metal" has a specific meaning in the art that is operatively different from that of the claim element "expanded metal net." Citing Stock, one of the references relied upon by the examiner and the Board, Alhamad points out that expanded metal is well known in the industry to be a stiff and strength enhancing reinforcement for composite materials. Alhamad then

points out that the claimed “expanded metal net” is specified in the claims to be “made from foil having a thickness in the range from about 0.028 to 0.5 mm.” Citing Schrenk, another reference relied upon by the examiner and the Board, Alhamad points out that such a thin expanded metal is known in the art to have “only limited dimensional stability” and is so flimsy that it will collapse under its own weight. Schrenk at Col. 1, lines 27-29. As a result, according to Alhamad, no reasonable artisan would even contemplate using a flimsy expanded metal net as a strength enhancing agent for reinforcing a wall board. Therefore, there is no motivation to combine these references for any reason, let alone for the claimed reason of promoting fire resistance. We agree with Alhamad and conclude that the Board has failed to make even a prima facie showing of obviousness.

Manifestly there is no showing of an expanded net material in either the Stock or the Kinney references, and the combination of these two references must fail.

3. The direction of the slits

All of Applicant’s claims call for the use of a flexible sheet of material having discontinuous slits in spaced apart lines that are parallel to each other ***but transverse to the longitudinal dimension of the sheet.***

The Stock patent, however, only shows slitted material in which the lines of slits run parallel with the longitudinal dimension of the sheet. See, for example, Fig. 1 of Stock. The Stock patent is merely representative of the prior art as pictured in Fig. 1 of the present application, and as described in the present specification at page 18, line 17 et seq.

The difference in the direction of the slits is a significant difference, because the prior art products, such as Stock, in which the slit lines are parallel with the longitudinal dimension of the sheet suffer serious disadvantages, not only in the manufacturing thereof but also in their use. These disadvantages are set forth and explained at length in the Applicant’s present specification starting at page 18, line 17, and continuing through page 21, line 24. By way of summary, the slits in the prior art product, as shown in Stock, must be cut by the use of banks of rotary discs, which are known to be subject to left and right slippage and cannot be used for slitting sheets of material more

than about 15 cm. in width. Further, the prior art product necessarily leaves substantial unslit margins along both longitudinal edges of the entire length of the sheet, such margins being only wastage. Further, continuous rolls of slit material in which the slits run parallel to the longitudinal dimension of the sheet, as in Stock, cannot be stretched into expanded net form by pulling longitudinally. This seriously detracts from their usefulness, as demonstrated in greater detail in the present specification starting at page 19, line 27, and continuing through page 21, line 24.

Because the Stock patent does not show or suggest the transverse positioning of the slits, as specified in all of Applicant's claims, and because of the significant advantages that Applicant's product possesses because of this difference, it is submitted that the Stock patent is merely representative of the inapplicable prior art and provides no basis for a valid rejection.

Recognizing this deficiency in the Stock reference, the Examiner now seeks to combine the Stock patent with the Kinney patent. The Examiner states that it would have been obvious to substitute Kinney's transverse slits for Stocks longitudinal slits, but he does not point to any place in the prior art that would provide the motivation for making such a substitution. More importantly, there is no showing of motivation for such a substitution to overcome the above-mentioned defects that occur in the manufacture and handling of **expanded net material** -- a completely different material than the structurally rigid expanded metal products that are dealt with by Kinney and Stock.

4. The longitudinal edges of the sheet being intercepted by slits

Claim 12 contains the additional feature that "the longitudinal edges of said sheet (are) intercepted by slits on said slit lines." The Stock patent does not show or suggest any product incorporating such feature. Since all the slits run parallel to the longitudinal dimension of the sheet, it is not possible that any of such slits could also intercept the longitudinal edges of the sheet.

This also is a significant distinction, because the unslit margins of the Stock patented product make it impossible to pull the sheet longitudinally to stretch it into a metal net. The significance of this distinction is set forth in detail in the present specification at page 18, line 17 et seq. In the Stock configuration, the only way to expand the slitted sheet is to grasp the material along the entire length of both longitudinal edges and pull in a direction transverse to the longitudinal dimension of the sheet. This requires special, complicated, heavy equipment, especially if the stretching is to be done on a continuous basis. This also prevents the feature of Applicant's invention in which rolls of slitted material are transported to distant usage locations and stretching on site by pulling the sheet longitudinally as it is being removed from the roll.

Here again, the Examiner seeks to cure the deficiency of Stock by citing the Kinney patent. However, as pointed out above, there is no showing in the cited art of any motivational basis for making the substitution of Kinney's slit pattern for Stock's, particularly since both Stock and Kinney are using a completely different kind of material.

5. Transporting rolls of slitted material to the site of usage

Claim 11 contains the additional step of "transporting said (slitted) roll in compact, unexpanded form to a site of usage" and "unrolling and stretching said continuous sheet to provide a three-dimensional cellular net material" at that site. This feature of the invention provides even further advantages, as set forth in greater detail in the Applicant's specification, starting at page 43, line 20.

Neither in the Stock patent nor in the Kinney patent is there any disclosure or suggestion of this particular feature. The Examiner merely states that "Transportation of construction materials to a job site in a compact form for field assembly is well known in the construction art." However, there is no showing in the art of transporting rolls of slitted flexible sheet material to the job site where expanded net materials can be made merely by pulling in a transverse direction.

The foregoing distinction contributes even further to the patentability of claim 11.

For all of the above reasons, it is submitted that all the present claims, as amended, are patentably distinct from the combination of the Stock and Kinney patents, and that the rejection should be withdrawn.

Favorable action on this application is solicited.

Respectfully submitted,

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Dated: Nov 7, 2002



VERSION WITH MARKINGS TO SHOW CHANGES MADE

1. (Twice Amended) A construction material comprising (a) a cellular expanded [sheet of] net material formed by longitudinally stretching a sheet of flexible material having discontinuous slits in spaced apart parallel lines parallel to each other but transverse to the longitudinal dimension of said sheet, and (b) a filler material comprising aggregate and tar filled in the cells of said cellular expanded [sheet] net material.

6. (Twice Amended) A method of producing a construction material comprising the steps of slitting a sheet of flexible material to provide discontinuous slits in spaced apart lines parallel to each other but transverse to the longitudinal dimension of said sheet, stretching said slitted sheet to produce a three-dimensional cellular net configuration, filling the cells thereof with a mixture of melted tar and aggregate, and subsequently cooling said material to produce a hardened layer of construction material.

11. (Twice Amended) A method of providing a construction material comprising the steps of producing a compact roll of a continuous sheet of unexpanded flexible material having discontinuous slits in spaced apart lines parallel to each other but transverse to the longitudinal dimension of said sheet; transporting said roll in compact, unexpanded form to a site of usage; unrolling and stretching said continuous sheet to provide a three-dimensional cellular net material; and filling the cells of said cellular net material with a mixture of melted tar and aggregate.

12. (Amended) A construction material comprising (a) a cellular expanded [sheet of] net material formed by longitudinally stretching a sheet of flexible material having discontinuous slits in spaced apart lines parallel to each other but transverse to the longitudinal dimension of said sheet, the longitudinal edges of said sheet being intercepted by slits on said slit lines, and (b) a filler material comprising aggregate and tar filled in the cells of said cellular expanded [sheet] net material.